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Class I, HEXAPODA.

Order I, HYMENOPTERA.

THE PHILANTHIDÆ OF NEW MEXICO.—II.

By H. L. VIERECK AND T. D. A. COCKERELL.

NEW HAVEN, CONN.

COLORADO SPRINGS, COL.

Genus *CERCERIS* Latreille.

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In addition to the species now studied, the following have been found in New Mexico:

C. frontata Say. Vega S. José (Townsend), Roswell (Cockerell).

C. venator Cr. El Rito (Townsend), Las Vegas (Cockerell), Mesilla Valley.

C. bicornuta Guér. Vega S. José (Townsend). The last two are probably sexes of one species.

The species of *Cerceris* may be divided into rather artificial groups, according to the sculpture of the metathoracic enclosure. The differences in this structure are interesting, as it is difficult to imagine in what way they can be of service.

(A.) Enclosure without distinct punctures or striæ.

(a) Smooth and shining: *C. ferruginior*, *garciانا*, *populorum*, *erigoni*, *guara*, *venator*, *californica*, *kennicottii*, *tolteca*, *azteca*.

- (b) Dull, slightly inclined to be striolate: *vicina*, *novomexicana*.
- (c) Rugose: *blakei*.
- (d) Obscurely aciculate (like *b?*): *binodis*.
- (e) Aciculate: *maximiliani*, *montivaga*, *truncata*. In the last the median furrow is crenulated, as also it is in *flavida*.

(B.) Enclosure with punctures and striæ only at the sides.

- (a) Smooth in middle, punctured at sides: *macrosticta*, *femur-rubrum*, *hebes*, *fasciola*.
- (b) Dull, with a few rather large lateral punctures: *fidelis*, *subpetiolata*.
- (c) Smooth, dullish, obliquely striatulate at sides: *convergens*, *rinconis*, *deserta*.
- (d) Dull, margins punctate: *chilopsidis*.
- (e) A few deep punctures on each side: *compar*.
- (f) Shining, with slightly oblique striæ on sides: *sexta*.
- (g) Shining, impunctate, the sides foveolate: *chiriquensis*.
- (h) Impunctate, sides foveolate-striate: *imperialis*.
- (i) Longitudinally striated laterally: *erythropoda*.

(C.) Striate or grooved practically all over.

- (a) Strongly longitudinally striated: *nasica*, *platyrhina*, *imitator*, *morata*, *biungulata*, *nigrescens*, *dentifrons*, *strigosa*, *marginata*.
- (b) Dull, granular, obliquely longitudinally striated: *tapaneca*.
- (c) Finely and somewhat obliquely striated: *fulvipes*.
- (d) Coarsely and obliquely striated: *compacta*.
- (e) Shining, coarsely striolate: *aureofacialis*.
- (f) Transversely striated: *smithiana*, *rufinoda*, *crotonella*.

(D.) Punctate practically all over.

- (a) Punctured: *sonorensis*.
- (b) Finely and closely punctured: *montezuma*.
- (c) Ill-defined, strongly punctured: *feralis*.
- (d) Not defined, except by six large oblong foveæ: *obsoleta*.

(E.) With the anterior and posterior portions different.

- (a) Punctured, smooth at base: *jucunda*.
- (b) Transversely striate anteriorly: *cockerelli*.
- (c) Striate longitudinally or slightly obliquely at base: *clypeata*.

***Cerceris nasica*, new species.**

♀. Length about 14½ mm.; black, dull yellow, and ferruginous; pubescence short and erect, rather abundant, distinctly golden on head and thorax; punctures throughout dense and coarse. Head with broad cheeks and vertex; facial quadrangle approximately square; clypeus with a very large projecting process, strongly convex above in a transverse direction, with the anterior corners (forming somewhat less than right angles) directed downwards; clypeus yellow, with the anterior margin of the process, and a shining concave area on the middle of the anterior margin (beneath the process), ferruginous; mandible yellow, with the apical two fifths black, the junction of the two colors ferruginous; lateral face-marks yellow and very broad, touching antennal sockets and ending in ferruginous wedge-shaped marks at the top of the eyes; yellow supraclypeal mark triangular, sending a process up each side of the sharp carina between the antennæ; front black, red between the ocelli; vertex and cheeks red, the latter with a yellowish spot on the upper part; flagellum red, with about the apical half, except the tip, black; thorax black, the coarse punctures often confluent; upper boarder of prothorax broadly yellow suffused with red; tubercles black, with a faint reddish spot; scutellum red; postscutellum yellow; enclosure of metathorax triangular and well-defined, strongly longitudinally ridged; tegulæ deep yellow, shining; wings fuliginous, stigma ferruginous, nervures mostly fuscous; legs yellow, strongly suffused with ferruginous, coxæ partly black; abdomen with the nodose first segment red, the others yellow, with a black band at the extreme base of the second to fifth; pygidial area parallel-sided, transversely corrugated, ferruginous with the tip black.

Habitat. — New Mexico (F. H. Snow). Exact locality and date unknown.

***Cerceris fidelis*, new species.**

♀. Length about 18 mm.; similar to *C. nasica*, but easily distinguished by the clypeal process being comparatively very short; the enclosure of metathorax without longitudinal ridges, but with a slight median groove, and an oblique row of punctures on each side; and the sides of the metathorax almost entirely yellow, the yellow suffused with red along the edges. Other differences are as follows; size larger; anterior middle of clypeus with a transverse blackish groove instead of a shining area; no red between ocelli; yellow of lateral face marks extending up on to vertex; mesothorax slightly marked with red posteriorly; tegulæ red with a suffused yellow mark; wings not so dark except on apical margins; basal nervure falling considerably short of transverse medial (in *nasica* it nearly meets it); femora red, hind femora yellow in front; first abdominal segment yellow like the rest; ventral surface of abdomen mainly red; pygidial area evenly rugose, with a strong fringe of pale golden hairs on each side. The flagellum is longer in *fidelis* than in *nasica*, and only red basally.

Habitat. — Santa Fé, N. M. (Cockerell, 1336). Taken July 7. Mr. Fox had recognized it years ago (in litt.) as an apparently new species, near *C. inimica*.

***Cerceris platyrhina*, new species.**

♀. Length about 11 mm.; allied to *nasica*, and like it having the enclosure of metathorax strongly longitudinally ridged. It differs as follows: smaller and rather more slender; much less hairy; clypeal process flatter, and less emarginate seen from above; clypeus beneath process black, bordered on margin with some dark reddish, the shining concave area as in *nasica*; supraclypeal mark small, narrow and red, only occupying the lower part of the interantennal carina; yellow lateral face-marks ending abruptly no great distance above level of antennæ; front, cheeks, vertex and occiput black, except a small red spot behind ocelli; and a large red spot behind the upper part of each eye; no yellow on the red of prothorax; metathorax black, with a minute reddish spot on each side, scarcely visible; tegulæ yellowish-ferruginous; third abdominal segment with a red median cloud. As in *nasica* (but not in *fidelis*) the basal nervure almost meets transverse medial, and the first abdominal segment (except its black base) is red.

Habitat. — Fillmore Cañon, Organ Mts., N. M., August 29 (Cockerell).

***Cerceris macrosticta*, new species.**

♂. Length about 13½ mm.; black, yellow and red; not conspicuously hairy; densely and coarsely punctured, the punctures especially large on the metathorax and abdomen. Eyes large; facial quadrangle much longer than broad; face yellow up to level of antennæ, except a small black triangle beneath each socket, sending a narrow stripe down to the margin of the clypeus; vertex and front black, except that the lateral face-marks go a short distance above the level of the antennæ; posterior orbits bounded by a yellow stripe which ends abruptly not far from the top of the eye, sending a short process backward; cheeks behind the stripe slightly reddish, but the red soon passes into black; antennæ with the first five joints ferruginous, the next dusky reddish, the color beyond rapidly passing into dull black on the upper side, while the joints on the under side are shining yellowish, except the apical part of the last, which is black beneath, as well as above; on the upper side, the apical margins of the joints are inclined to be narrowly pallid, and are very conspicuously so on joints 11 and 12; joint 11 is longer than 10; 12 is much longer, being about as long as 10 and 11 together; 13 is somewhat shorter than 12, and obliquely truncate; mandibles yellow with the apex broadly black; anterior margin of clypeus obtusely pointed or angled in the middle, and from beneath each side, occupying the lateral third of the margin, there projects a reddish fringe of united hairs, concave on the upper side (a similar structure occurs in *C. hebes* Cam., Biol. Cent. Am., Hym. II, Pl. 8, fig. 4b); thorax black, the upper border of prothorax extending to tubercles, but interrupted in the middle line, round spot behind tubercles, oblong mark (slightly bordered with red) on pleura below that, spot on each side of scutellum (the area between these spots red), postscutellum, shining elongate mark on metathoracic enclosure (which is otherwise completely punctate), and large elongate marks on sides of metathorax, all yellow; tegulæ shining yellow; wings strongly ferruginous, nervures ferruginous; compared with *C. nasica* the marginal cell is longer, and the second submarginal much smaller, with a longer superior petiole; legs yellow and red, the tarsi light yellow, the femora with blackish stripes above; anterior femora, and to a less degree the

middle ones, swollen beneath, the swollen surface being shining and yellow; posterior femora ferruginous beneath, with two dark longitudinal stripes; hind tibiæ somewhat contorted, with a subhyaline saw-toothed posterior edge; joints of hind tarsi stout; abdomen constricted between the segments, with a peculiar appearance from the very large punctures; general color yellow, black at the sutures and on disc of first segment, broadly red on discs of second to fifth segments, the red bounded behind by yellow; apex broadly truncate, the sides of the truncation somewhat pointed, and the margin wavy with a double curve; ventral surface yellow with three broad black bands, and a pair of brown club-shaped marks, joined basally, on first segment, the surface of the segments also thinly covered with long appressed hairs.

Habitat.—"New Mexico"; no other particulars known. In Coll. Acad. Nat. Sci., Phila.

***Cerceris ferruginior*, new species.**

♂. Length 9 mm.; black, yellow and red; strongly punctured, the punctures on the front very close, on the mesothorax large and well separated on a shining ground, on the abdomen quite close. Face light yellow, nearly up to level of anterior ocellus, vertex and occiput black, the black extending downwards as a tongue to the base of each antennæ; cheeks black, with a triangular yellow mark on the lower part; mandibles yellow at base, ferruginous in the middle, and black at the end; clypeus ordinary; a little brush of stiff yellowish hair overlapping the base of each mandible; scape curved and slightly swollen, yellow in front, ferruginous behind; flagellum with the base ferruginous, passing into black above, the extreme apex red; prothorax with the whole of the upper part broadly yellow, with a dark ferruginous stain in the middle, tubercles yellowish-ferruginous; pleura ferruginous, suffused with black along the margins, and with a yellow patch just behind the tubercles; mesothorax black; tegulæ lemon-yellow; scutellum yellowish-ferruginous, edged with black in front and behind; postscutellum yellow; metathorax with the enclosure and a stripe passing downwards from it, black; the enclosure very distinct, smooth, impunctate, triangular; sides of metathorax ferruginous suffused with yellow, strongly but rather sparsely punctured; wings nearly clear, with the marginal and submarginal cells, and especially the apex, clouded with black; stigma orange-ferruginous nervures fuscous first recurrent nervure joining second submarginal cell about one third of its length from the base, legs ferruginous, tibiæ and basal joint of tarsi mostly yellow; hind tibiæ with a large blackish apical blotch behind; small joints of hind tarsi fuscous; hind coxæ with a rounded apical lamina; abdomen strongly constricted at the sutures laterally; first segment narrow, suboval, less than half the width of the second, ferruginous; second to sixth yellow, second with a large ferruginous basal patch, third to fifth largely black at base; apical plate ferruginous, truncate; venter with the first two segments red, the second with large sparse punctures, the other segments banded with black and light yellow, the yellow stained with ferruginous in the middle.

Habitat.—Southern New Mexico (Cockerell, B 46). The type was collected at Deming, in July.

***Cerceris garciana*, new species.**

♂. Length about 9 mm.; similar to *C. ferruginior*, but differs as follows: yellow of prothorax interrupted in the middle by a black line; tubercles black edged with light; pleura black; scutellum black with a faint reddish spot on each side; metathorax black, with an oval yellow patch edged with reddish, on each side; first two abdominal segments black at base; first segment decidedly shorter, and broader in proportion to its length; nervures ferruginous, second submarginal cell broader; second ventral abdominal segment with much black.

Habitat. — Las Cruces, N. M., May 18 (Fabian Garcia). This may represent only a race of the last.

***Cerceris populorum*, new species.**

♂. Length about 10½ mm.; allied to the last two, and having, like them, the metathoracic enclosure smooth and shining. The general structure and punctuation is also the same. Head black, with the face light yellow except the anterior margin of the clypeus broadly and a large wedge-shaped mark on each side, which are black; mandibles ferruginous; scape dark ferruginous with a small light yellow spot; flagellum mostly black or nearly so, ferruginous beneath at base, and sometimes above on first two joints, and the extreme apex red; thorax black, upper border of prothorax broadly yellow, interrupted by black in the middle; a reddish dot on tubercles, and another just behind, or the latter may be absent; scutellum and metathorax black, but postscutellum yellow; tegulae yellow; wings as in *C. ferruginior*, except that the second submarginal cell is larger, and the third transverse-cubital nervure has a distinct double curve; legs red, tibiae yellow, tarsi dusky ferruginous, anterior femora with a large black patch behind, middle femora with a small one; posterior tibiae with an apical blackish patch behind; first abdominal segment shaped about as in *garciana*, red, with an anterior black patch; segments 2 to 6 yellow, broadly black at base, the black on 2 to 4 much best developed in the middle; apical plate dark ferruginous, truncate, the angles spined; venter black suffused with red, without yellow bands.

Habitat. — Albuquerque, N. M., June 30, between the town and the University (Cockerell, 3215 = type). Another (Cockerell, 2951) May 8, on a young poplar tree, not in flower, on campus of Agricultural College at Mesilla Park, N. M. On the same poplar tree, at the same time, were taken *Perilampus hyalinus*, ♀, *Monodontomerus montivagus*, ♂ (both det. Ashm.) and a male *Colletes*.

***Cerceris femur-rubrum*, new species.**

♂. Length about 9 mm.; black marked with cream-color or very light yellow, no red marks on body; legs red and cream-color; surface of body shining, with dense strong punctures. Head black, a small yellowish spot behind the top of each eye; face up to level of antennae cream-color, this color further extending upwards as a narrow band in the middle line, and broadly at the sides, terminating a short distance below the level of the middle ocellus; mandibles whitish basally, ferruginous in the middle, and black at apex; middle of anterior margin of clypeus pointed; lateral

fringes long, concave above, hyaline; antennæ very long; scape yellowish in front, pale red behind; flagellum red at base and beneath, but passing into reddish-black above, the apical joint red and curved; thorax black, the upper border of prothorax broadly, but interrupted in the middle, a spot behind tubercles, two large patches (with only a linear separation) on scutellum, a short stripe on postscutellum, and an elongate mark on each side of metathorax, all cream-color; enclosure of metathorax smooth in the middle and punctured at the sides; tegulæ cream-color, dark reddish basally; wings with the usual dusky apex, stigma ferruginous, nervures fuscous; coxæ cream-colored in front, as also are the middle and hind trochanters; femora very bright light ferruginous, the anterior and middle ones with a cream-colored patch beneath; anterior and middle tibiæ cream-color, more or less reddish on inner side; hind tibiæ somewhat distorted, cream-color basally, otherwise red; tarsi cream-color and reddish, claw-joint of hind tarsi blackish at base; abdomen with the first segment rather broader than long, with long erect pale hairs; segments 1 to 6 black, with a broad light yellow band; apical plate very broad, black with the hind edge rather broadly red; venter extremely dark reddish-brown, with four cream-colored spots on each side.

Habitat. — Albuquerque, N. M., June 30, between the town and the university two specimens (Cockerell, 3236 and 3237). The antennæ are much longer than in *C. garciana*, etc.

***Cerceris convergens*, new species.**

♀. Length about 8 mm.; black with creamy-white to very light yellow markings, the yellowest tint being on the broad band on second abdominal segment; punctures strong and dense; pubescence very scanty. Head large, transversely oval, facial quadrangle somewhat broader than long; clypeus, a supraclypeal dot, and broad lateral marks going a short distance above the antennæ, cream color; vertex dullish and very densely punctured; anterior edge of clypeus somewhat projecting, and black, the lateral fringes silvery white; mandibles with the basal half mainly cream-colored; antennæ of ordinary length; scape curved, white in front; flagellum yellowish beneath and blackish above; thorax rather dull black, two transverse marks on upper border of prothorax, spot behind tubules, a spot on each side of scutellum, and post-scutellum, cream-color; enclosure of metathorax smooth with its marginal area transversely (obliquely) striatulate; tegulæ cream-color with hyaline spot and margin; wings hyaline, apex and marginal cell blackened; stigma piceous, nervures dark brown; coxæ, trochanters and femora black the latter with the apices cream-color, the truncation of hind femora red; tibiæ cream-color, the anterior and middle ones with a black patch behind, the hind ones with the apical two fifths black; anterior and middle tarsi pale, hind tarsi blackish; first abdominal segment broader than long, bulging laterally, black with a dorsal cream-colored patch; second to fifth segments black with a light yellow band, that on second the broadest; pygideal area dark, narrow-pyriform, constricted apically; venter black without markings.

Habitat. — Alamogordo, N. M., May 13, 1902, one ♀ (H. L. Viereck).

***Cerceris chilopsidis*, new species.**

♀. Length nearly 9 mm.; similar to *C. convergens* but larger and presenting the following differences in detail: black clypeal margin much broader; supraclypeal

mark triangular; a pair of obliquely placed elongate light yellow marks on vertex; light spots on scutellum larger and much closer together; apical half of hind tibiæ dark; yellow band on second abdominal segment much narrower in the middle than at the sides; pygidial plate broadly rounded, not constricted at the end. Several of these characters are no doubt variable, but the different pygidial plate is quite distinctive. As in *C. convergens* the stigma is piceous, and there is brilliant silvery pubescence on each side of the clypeus.

Habitat. — Southern New Mexico (Cockerell, B 4). The type was collected at Rincon, July 5, at flowers of *Chilopsis saligna*.

The enclosure of the metathorax in *C. convergens* and *chilopsidis* is smooth and dullish, with the usual median furrow; in *convergens* its lateral margins are delicately striate, but in *chilopsidis* they are punctate, and the lower end of the furrow has some minute transverse ridges.

***Cerceris rinconis*, new species.**

♀. Size and appearance of *C. chilopsidis*, but differs as follows: black clypeal margin much shorter (more as in *convergens*); no supraclypeal mark; no mark on vertex; scutellum entirely black; enclosure of metathorax dullish, its margin faintly striatulate, not punctate; apices of femora more or less reddish; spot on first abdominal segment very small; pygidial plate narrowed apically. The stigma is piceous, and the hair on each side of clypeus silvery.

Habitat. — Southern New Mexico (Cockerell, B 4). The type was collected at Rincon, July 5, at flowers of *Chilopsis saligna*.

C. rinconis is certainly distinct from *C. chilopsidis*, but it will very likely prove to be only a variety of *C. convergens*.

***Cerceris novomexicana*, new species.**

♀. Looks like *vicina*, but rather larger, and differs as follows: clypeus with the anterior margin broadly truncate and gently concave, after the general style of *C. nigrescens*; scape stouter, bright yellow in front; a large yellow spot on each side of metathorax; pygidial plate subtruncate at end; anterior and middle femora with more than the apical half bright yellow. The stigma is ferruginous, and there is no patch of silvery hair on each side of the clypeus. The markings are very bright yellow. The anterior and middle tibiæ are entirely yellow. The enclosure of metathorax, as in *vicina*, is dull, without punctures or grooves but slightly longitudinally striate.

Habitat. — Johnson Park, N. M., at skunk-cabbage, July 7, 1903 (Anna Gohrman, No. 5). It is a little doubtful what plant is referred to as "skunk-cabbage."

This has many characters in common with *C. deserta*, Say, but differs by the large yellow marks on metathorax, the character of the punctuation, etc.

Cerceris nigrescens Smith.

♀. Highrolls, N. M., May 29 and 30, 1902 (Viereck); Beulah, N. M., June 29, 1902 (Viereck), and Aug., 1902 (Cockerell); Pecos, N. M., at flowers of *Fallugia*, June 23, 1903 (W. P. Cockerell). The Pecos specimen represents a variation with large yellowish-white lateral marks on the third and fourth ventral segments of abdomen. One of the Beulah specimens has small lateral dots on these segments; the others have the venter entirely black. The enclosure of the metathorax is distinctly longitudinally (a little obliquely) striated. Three males, which evidently belong here, are from Highrolls, N. M., May 29, 1902 (Viereck), and Las Vegas, N. M., at flowers of *Solidago canadensis*, Aug. 11 (W. P. Cockerell). They have the face light yellow instead of white; the metathorax varies from all black to spotted with yellow. *C. nigrescens*, in New Mexico, inhabits the Upper Austral, Transition and Canadian zones.

Cerceris acanthophila Cockerell.

Described in *Entomologist*, 1897, p. 135. It inhabits the Middle and Upper Austral zones in New Mexico, having been collected at Deming (Cockerell), Las Cruces (Cockerell), Las Vegas (Viereck, W. P. Cockerell) and White Oaks (B. Chapman). One comes from Las Vegas Hot Springs (Cockerell), just in the Transition Zone. It has been observed to visit *Solanum elaeagnifolium* at Las Cruces, *Petalostemon oligophyllus* at Las Vegas. The time of flight appears to be the same as that of *C. nigrescens*. The stigma is piceous varying to brown, never fulvous or ferruginous; in *nigrescens* it is fulvo-ferruginous. The enclosure of the metathorax is smooth and shining, but in the females it shows some very distinct marginal punctures.

Cerceris finitima Cresson.

Mesilla, N. M., at *Solidago canadensis*, August 15 (Cockerell); Las Cruces, N. M. (Cockerell); Highrolls, N. M., June 14, 1902 (Viereck). The stigma is dark brown or piceous; the enclosure of metathorax is more or less transversely striate.

Cerceris rufinoda Cresson.

Las Vegas, N. M., 4 ♂, 1 ♀, June 26, 1902 (Viereck). The enclosure of metathorax is coarsely transversely ridged. In the ♀ the clypeus and face on each side of it are black, and the large oblong lateral face marks, on each side of the antennæ, are very pale yellow; the pygidial plate is broadly truncate.

Cerceris rufinoda var. crucis, new variety.

♀. Lateral face-marks white; clypeus, etc., black as in type; metathorax, except enclosure, red (black in type); pygidial plate as in type.

Habitat. — Las Cruces, N. M., at staminate flowers of *Croton neo-mexicanum*, September 25, 1895 (Cockerell); also one with the second abdominal segment (as well as the first) red, Las Cruces, August 24 (Cockerell).

Cerceris crotonella, new species.

♀. Like *C. rufinoda* var. *crucis*, but smaller (length hardly over 6 mm.), with the clypeus and face on each side of it white, and a linear white supraclypeal band reaching nearly to anterior ocellus; metathorax (except enclosure) and first three segments of abdomen red, except for the usual yellowish-white bands; stigma brown; second submarginal cell much smaller, the petiole being about as long as one of the sides; pygidial plate with the end rounded, and narrower; venter with the first three segments red, the others black, without markings.

Habitat. — Las Cruces, N. M., at staminate flowers of *Croton neo-mexicanum*, September 25, 1895, one (Cockerell). The coloration of the face recalls the male of *rufinoda*.

Cerceris eriogoni, new species.

♂. 6.5 mm. Head: Black, with the clypeus except the lower border and lateral face marks yellow; lateral face marks not extending to the antennæ nor to the mandibles but near to the top of the eye; deeply punctured the punctures adjoining or nearly; a distinct longitudinal carina between the antennæ extending shortly above and below their insertion; eyes dark somewhat brownish; joint 3 of the antenna longer than 4, shorter than 4 + 5; scape orange, flagellum reddish-orange beneath, dark-brown above, mandibles yellow and brown.

Pronotum slightly depressed medially, the anterior border moderately ridged; punctured but not distinctly; traversed by a broken yellow band; propleura black, presenting a groove bounded by ridges, dorsum with punctures more separated than those on the head but equally as deep, somewhat shining, tegulæ yellow; mesopleura dull with deep adjoining punctures; scutellum punctured more like the pronotum than the dorsum, yellow; postscutellum black, its punctures five and adjoining; metathorax shining, punctured like the head, the punctures adjoining, enclosure clearly defined, smooth, with a shallow longitudinal impression which is slightly transversely striate; wings: first and second recurrent nervures entering the second and third cubital cells respectively as far from the cubitus as the petiole of the second submarginal cell is long, nervures and stigma dark-brown, median cell in the costal corner, marginal cell and apex of wing fuscous; legs black, apices of femora, four anterior tibiæ and tarsi, basal two thirds of posterior tibiæ and metatarsi of posterior legs yellow, tarsi brown.

Abdomen: Dorsally uniformly punctured like the metathorax, venter indistinctly punctured; pygidium moderately margined about one and a half times as long as broad, second segment with the apical half orange, segments 3, 4 and 5 with apical

third 6 with apical half orange. Entire insect covered with silver pubescence which does not obscure the sculpture and is most abundant on the pleura, dense and appressed on the yellow space of the face.

Habitat. — Dripping Springs, Organ Mts., New Mexico at flowers of *Eriogonum* (Cockerell). Related to *C. kennicottii*.

***Cerceris townsendi*, new species.**

♀. 7 mm. Head: Black, a yellow spot behind each eye near the vertex, all of the face below antennæ yellow, the lateral face marks and the supraclypeal mark extending half way between the antennæ and anterior ocellus; strongly punctured, the punctures adjoining on the front and vertex, punctures on the yellow lateral face marks not adjoining and not so deep, frontal carina terminating above with the supraclypeal mark, below extending nearly to the clypeus, eyes dull gray; relation of antennal joints same as in *erigoni*, scape yellow, pedicellum and flagellum pale brown beneath, dark brown above; mandibles yellow tipped with brown.

Thorax: Pronotum feebly margined on the sides, with large shallow separated punctures and a transverse yellow band interrupted with black; propleura black not grooved; dorsulum with punctures like those on the head adjoining separated in the middle; mesopleura with shallow adjoining punctures giving a reticulated appearance; scutellum punctured like the dorsulum, in the middle with sparse punctures; metathorax coarsely punctured like the dorsulum, shining, enclosure dull, appearing transversely striate, black, with two yellow spots one on each side; wings, first and second, recurrent nervures entering the second and third submarginal cells respectively a little farther from the first and second transverse cubiti than the length of the petiole of the second submarginal cell, stigma testaceous, nervures brown, marginal cell and apex of the wings infuscated; legs yellow, basal half of four anterior femora and apical half of posterior femora more or less brown to black, posterior tibiæ posteriorly and tarsi brownish.

Abdomen: Uniformly punctured but not so coarsely as the metathorax, the venter indistinctly punctured except on the raised portions where the punctures are almost as distinct as on the dorsulum, pygidium as in *erigonum*, first segment with two spots, one on each side, segments 2, 3, 4, 5 and 6 with an apical yellow band occupying $\frac{1}{3}$ or more of the segment, ventral segments 2, 3 and 4 with a yellow spot on each side.

Everywhere thinly pubescent with silvery hair.

Habitat. — Las Cruces, New Mexico ('Townsend).

***Cerceris vicinaoides*, new species.**

♂. 9.5 mm. Head: Black, a yellow spot on each cheek near the vertex; clypeus protuberant, truncate, yellow, margined with black; a yellow spot on each side of the face below the lateral face marks, the latter separated from the clypeus by a black line and nearly extending to the top of the eye; supraclypeal mark represented by two yellow spots; face and clypeus dull the punctures shallow; head with nearly adjoining well defined shallow punctures; eyes black and gray; third joint of antennæ equal to 4 + 5, scape black yellow in front, pedicellum and flagellum dark brown above pale brown beneath; basal half of mandibles yellow, apical half nearly black.

Thorax: Pronotum not distinctly punctured nor margined, slightly impressed medially, a yellow spot on each side; propleura black, slightly grooved and striate; dorsum dull, punctures irregularly spaced some adjoining others more than twice their width apart, lateral impressed lines indicated; mesopleura dull reticulate; scutellum punctured much like dorsum; postscutellum almost impunctate banded with yellow; metathorax punctured like the dorsum, enclosure dull impunctate, with an indistinct median groove, a yellow spot on each side; wings as in *erigoni*, greater part of tegulæ yellow, stigma pale brown, nervures brown, marginal cell and apex of wing smoky; legs black, apices of four anterior femora with some yellow, tibiae and tarsi of four anterior legs yellow, the tarsi becoming brownish, posterior tibiae yellow, apical third black, tarsi brownish.

Abdomen: Uniformly punctured, the punctures nearly adjoining, raised portions of ventral segments nearly as distinctly punctured as the dorsum; pygidium twice as long as broad at base, finger shaped; first segment with a yellow spot on each side, segments 2, 3, 4 and 5 with an apical yellow band, broad laterally, narrow in the middle; ventral segments 3 and 4 with a yellow spot on each side.

Pubescent like *torosendi*.

Habitat. — Pecos, New Mexico, June 25, 1903, on *Fallugia* (W. P. Cockerell).

Genus **APHILANTHOPS** Patton.

TABLE OF SPECIES.

Female. Reddish, markings yellow; black or blackish band from eye to eye on the vertex, enclosing ocelli **concinnulus**.

Males. Black predominating, markings yellow, reddish hue confined to legs and abdomen, sometimes the thorax is partly reddish **concinnulus**.

Abdomen not reddish, black and yellow.

Face all black **taurus**.

Face with prominent yellow marks.

Punctures on front between ocelli and eyes separated, rather distinct; flagellum all black **frigidus**.

Punctures on front between ocelli and eyes rather indistinct; flagellum partly brown **bakeri**.

Aphilanthops concinnulus Cockerell.

Rincon, N. M., both sexes (Cockerell); Las Cruces, on *Solanum* (Cockerell, 898). Dunning has erroneously referred the female to *A. utahensis* Baker.

Aphilanthops taurus Cockerell.

Las Cruces, N. M., male at staminate flowers of *Croton neomexicanum*, September 25, 1895 (Cockerell). Las Cruces (Cockerell, 5090). Also found at Rincon.

Aphilanthops frigidus (Smith).

Highrolls, N. M., May 29, 1902 (Viereck).

Aphilanthops bakeri Dunning.

“New Mexico”; one in Coll. Amer. Ent. Soc.

Aphilanthops quadrinotatus Ashmead.

Mesilla Valley (Cockerell); Glorieta, 1903 (Cockerell).

Aphilanthops laticinctus (Cress).

Mesilla Valley (Cockerell); Santa Fé (Cockerell).

Genus PHILANTHUS Fabricius.

As here used, this generic name includes *Anthophilus* and *Pseudanthophilus*.

TABLE OF SPECIES.

Females and males.

- | | |
|---------------------------------------------------------------------------------------------------------------------------|------------------------|
| Predominating color of abdomen yellow (at least in one sex)..... | 1. |
| Predominating color of abdomen black..... | 3. |
| 1. Very large, about 18 mm. long | gloriosus. |
| Smaller 14 mm. long and less | 2. |
| 2. First abdominal segment with red | basilaris. |
| First abdominal segment with no red. | |
| Head behind the eye marked with yellow; head and thorax not distinctly hairy; first abdominal segment coarsely punctured. | |
| First segment of abdomen impunctate or nearly where the anterior face joins the superior face..... | crabroniformis. |
| First abdominal segment finely punctured where the anterior face joins the superior face..... | crotoniphilus. |
| Head behind the eye without a yellow spot, all black. | |
| Head and thorax distinctly hairy; first abdominal segment finely punctured..... | albopilosus. |
| Head and thorax not distinctly hairy; first abdominal segment coarsely punctured | punctinudus. |
| 3. Segments of abdomen very coarsely punctured | cockerelli. |
| Segments of abdomen at least in part rather moderately punctured; abdomen with sinuate or broken bands. | |

Females.

- | | |
|--------------------------------------------------------------------------------|-----------------|
| Clypeus with a rounded out truncation and a blunt tooth each side thereof..... | psyche. |
| Clypeus simple | politus. |

Males.

- | | |
|----------------------------------------------------------------------------------------------------|--------------------|
| Two series of punctures on third dorsal segment..... | 4. |
| One series of small or moderate punctures on third dorsal segment.. | 5. |
| 4. Punctures rather dense..... | albifrons. |
| Punctures rather sparse..... | albifrons. |
| 5. Front with a large yellow spot and a large black space between it and the eyes. | |
| | pulchellus. |
| Front with the yellow space larger, extending to the eyes and connected with the yellow below..... | pacificus. |

Philanthus gloriosus Cresson.

Pecos, N. M., August 19, 1903, at flowers of *Eriogonum*, one (W. P. Cockerell); Pecos, August 6, 1903 (Cockerell); White Oaks, August 2, 1902 (Bertha Chapman). Also Mesilla Valley. The eyes of the female in life are dull green suffused with reddish.

Philanthus basilaris Cresson.

Pecos, N. M., August 19, 1903, at flowers of *Eriogonum*, one of each sex (W. P. Cockerell), and one male (T. D. A. Cockerell). The male frequently settles upon the ground, and looks rather like a Bembecid; it has the eyes pea-green in life, strongly converging above, and antennæ recall those of ♂ *Masaris*.*

Philanthus crabroniformis Smith (*multimaculatus* Cam.).

Las Cruces, N. M., at *Salix*, May 2, ♂ = type of *P. anna* Dunning (Cockerell); Las Cruces, at *Bigelovia*, *i. e.*, *Isocoma*, one = cotype of *P. cleomæ* Dunning (Cockerell, 4786); Las Cruces, at *Chilopsis saligna* in Barker's garden, June 5 (Cockerell); Mesilla, at *Aster spinosus*, June 24 (Cockerell); Highrolls, May 30 to June 3, 1902, three (Viereck); Santa Fé, August, at *Cleome serrulata*, one (Cockerell, 4092). Ranges from the Middle Sonoran to the Transition Zone.

Philanthus albopilosus Cresson.

Las Cruces, N. M., at *Solidago*, one (Cockerell, 2000).

Philanthus cockerelli (Dunning).

Described as a variety of *punctatus*, but apparently a valid species.

Rincon, N. M. (Cockerell, B4); Las Cruces (Cockerell, 1954); Highrolls, May 30 to June 3, 1902 (Viereck); Alamogordo, May 9 to 13, 1902, two (Viereck). Also Fillmore Cañon, Organ Mts. (C. H. T. Townsend).

P. punctatus Say, reported from the Mesilla Valley, was no doubt *cockerelli*.

Philanthus psyche Dunning.

Las Cruces, N. M. (Cockerell, 4893).

Philanthus politus Say.

Pecos Cañon, N. M., 7200 feet, at flowers of *Holodiscus australis*, July 21, 1903 (W. P. Cockerell); near Viveash Ranch (above Pecos,

* It is worth while to record that *Pseudomasaris vespodides* (Cress.) was common at Pecos, and its habits were studied by Mrs. Cockerell.

Cañon), 8800 feet, at flowers of *Potentilla*, July 21, 1903 (W. P. Cockerell).

***Philanthus albifrons* Cresson** (*henricus* Dunning).

Beulah, N. M., August 16, 1900 (T. D. A. and W. P. Cockerell); Pecos, July 25 to August 18, 1903 (Cockerell); Las Vegas Hot Springs, a more sparsely punctured form (Cockerell). Also on the Gila River in New Mexico (C. H. T. Townsend).

***Philanthus pulchellus* Cresson.**

Pecos, at *Fallugia*, June 23 and 24, 1903 (W. P. Cockerell); Beulah, June 29, 1902 (Viereck).

The markings of the abdomen are variable.

***Philanthus pacificus* Cresson.**

Las Cruces, at staminate flowers of *Croton neomexicanum*, September 25, 1895 (Cockerell).

***Philanthus scelestus* Cresson.**

Santa Fé (see Canadian Entomologist, 1898, p. 152).

***Philanthus ventrilabris* Fabricius.**

Socorro (Cockerell, 3168), var. *frontalis*, Cresson, Mesilla Valley (Cockerell), Gila River (Townsend), Las Vegas (Cockerell).

***Philanthus punctinudus*, new species.**

♂. 6.5 mm. Head: yellow with the vertex, occiput, cheeks, a very narrow margin along the inner orbits, a spot back of the insertion of antennæ, mandibles and antennæ black; two yellow spots back of posterior ocelli; eyes dull brownish, almost impunctate, except on vertex where the punctures are distinct but sparse; a distinct median longitudinal impressed line between the antennæ, not extending to the clypeus; third joint of antennæ longer than $4 + 5$, shorter than $4 + 5 + 6$; hardly any molar space.

Thorax: Pronotum slightly notched in the middle, with some obscure punctures, yellow; dorsulum polished, sparsely punctured, slightly impressed in the middle, two yellow streaks along the middle line and a yellow spot above each tegula; mesopleura almost reticulate with a yellow spot adjoining the yellow tubercles; scutellum and postscutellum yellow with a slight median impressed line, sparsely punctured like the dorsulum; metathorax shining black with two yellow spots on the superior disc which is impressed medially, the impression rugulose, otherwise the surface of the metathorax is interrupted by sparse, shallow punctures, sparsest on the superior face; tegulae and base of wings yellow, transverse median nervure almost interstitial with the basal, first recurrent nervure received by the second submarginal cell before the middle, second recurrent nervure received by the third submarginal cell before the basal fourth, stigma and costal nervure pale testaceous, the other nervures darker, rather fuscous; femora brownish to blackish, except the yellow tips, trochanters and

coxæ brownish to black, tibiæ yellow, a brown stripe on the under side, tarsi yellow, the apical joints brownish like the claws, pulvilli blackish.

Abdomen: Segments 1 and 2 more closely punctured than the dorsulum, yellow, except a basal black border which widens into a triangle laterally and an apical black border; the remaining segments not so distinctly punctured as the first two; segments 3, 4 and 5 with a sinuate, narrow yellow band on the apical margin; apical segments black; venter black.

Entire insect covered with a sparse silvery pubescence, the hairs longest on the head and metathorax.

Habitat. — San Marcial, New Mexico (Cockerell, 3118).

***Philanthus crotoniphilus*, new species.**

♂. 9 mm. Head: front very closely punctured, dullish; vertex rather sparsely punctured, shining; cheeks finely rather closely punctured; front with a median impressed line between the antennæ; sides of the face more shining, not so closely punctured as the vertex; clypeus indistinctly punctured; front yellow except the black dot on each side of the clypeus, the black margin of the clypeus, the black around the insertion of the antennæ which is fused with a broad band of black on the front that connects with the black vertex and is united by a narrow band in front of the anterior ocellus, cheeks black with a yellow spot, mandibles yellow; malar space longer than the pedicellum; third joint of antennæ longer than 4 + 5, shorter than 4 + 5 + 6, antennæ entirely black, eyes greenish.

Thorax: Pronotum as in *punctinudus*; dorsulum rather closely punctured except posteriorly where the punctures become sparse, a median impression more closely punctured than the adjoining area; dorsulum black; tegulæ, base of wings and tubercles yellow; mesopleura polished, distinctly rather sparsely punctured and with a transverse median impressed line on the superior half where the punctures are closest; scutellum punctured like mesopleura, black with a yellow spot on each side; postscutellum not so distinctly punctured, yellow; metathorax dullish, rather closely punctured, the median impression of the superior face rugulose, the median impression of the posterior face punctured like the adjoining area; a yellow band on the metapleura bordering the posterior face; tegulæ and base of wings yellowish, stigma and costa testaceous, nervures brownish; transverse median nervure received basad of the basal, first recurrent nervure received by the second submarginal cell before the middle, second recurrent nervure received by the third submarginal cell before the basal fourth, stigma and nervures colored as in *punctinudus*; coxæ and trochanters black except the yellow tips in some cases, femora black, the four anterior ones with nearly all of apical half yellow, the posterior two with apex yellow, tibiæ and tarsi yellow, the apical joints of the tarsi and the claws brownish, pulvilli blackish.

Abdomen: First and second segments coarsely punctured, the punctures nearly adjoining, in addition the first segment has fine punctures on the basal and apical margins; first segment with a broad yellow band across the middle nearly interrupted medially; second segment yellow with a narrow basal black band which is enlarged along the middle line and on the sides; third segment with sparse, large, shallow punctures, all of apical half and a little more covered with a yellow band widest laterally; segments 4-5 and 6 with a yellow band close to the apical margin, broadest

laterally; apex black; venter brownish and black, segments 2, 3 and 4 with a yellow spot on each side.

Covered with a pale whitish or silvery thin pubescence, quite abundant but nowhere hiding the surface, longest and most abundant on the head and venter.

Habitat. — Las Cruces, N. Mexico, 25 September, 1895, on staminate flowers of *Croton neomexicanum* (Cockerell).

DESCRIPTIONS OF NEW HYMENOPTERA FROM JAPAN. — II.

BY WILLIAM H. ASHMEAD, M.A., D.Sc.

WASHINGTON, D. C.

(PLATES VII AND VIII.)

Family LXI, TORYMIDÆ.

Subfamily V, MEGASTIGMINÆ.

Genus **MEGASTIGMUS** Dalman.

Megastigmus japonicus, new species.

Female. — Length, 2.5–3 mm.; ovipositor two thirds the length of the abdomen. Uniformly brownish-yellow, the sclerite between the parapsides and the tegulæ with a black or dusky spot, the abdomen with some brownish stains towards base above, the sheaths of the ovipositor black; eyes brown; ocelli black; flagellum pale brownish, the scape, pedicel, and legs yellowish. Wings hyaline, the veins, except the stigmal vein and its large knob which are brown-black, yellowish. The pronotum and the mesonotum are very finely transversely wrinkled, the scutellum feebly punctate, with a medium impressed line anteriorly and a cross-furrow before apex.

Type. — No. 7149, U. S. National Museum.

Japan (exact locality not given). Mr. A. Koebele; Gifu, taken in October by Mr. Y. Nawa, labelled No. 68.

Described from ten specimens, eight taken by Mr. Koebele and two taken by Mr. Nawa.

Megastigmus koebelei, new species.

Female. — Length, 2.5 mm., ovipositor as long as the abdomen. Uniformly brownish-yellow, immaculate, the ocelli dark, the eyes brown, the sheaths of the ovipositor black, the flagellum light brown, the scape and the legs pale yellowish. The pronotum above and the lobes of the mesonotum are delicately transversely wrinkled. Wings hyaline, the veins light brown, the large rounded knob of the stigmal vein brown-black.

Type. — No. 7150, U. S. National Museum.